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Summary of Thirty Cases treated by Thyroid Extract
in the Derby Borough Asylum.

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THYROID FEEDING IN INSANITY:

A SUMMARY OF THIRTY CASES TREATED BY THYROID EXTRACT
IN THE DERBY BOROUGH ASYLUM.¹

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DURING the last three or four years the treatment of myxœdema by thyroid extract has revolutionised the prognosis of this disease. This is strikingly illustrated by quotations from the article "Myxœdema" in the two editions of *Quain's Dictionary of Medicine*, both from the pen of Dr. Ord—First edition: "The progress of the disease is not readily affected by any remedy, the prognosis is altogether unfavourable." 1894 edition: "It is evident that in respect to myxœdema we have an effective cure in our hands not yet fully worked out, but even now constituting a very remarkable instance of the advancement of medical science. It is evident, also, that a new method of therapeutics, the extension of which to other organs than the thyroid body offers great possibilities, is hereby added to the science and art of medicine."

Most observers are agreed that the thyroid gland exerts some influence, direct or indirect, on the nervous system. Sanquirico and Canalis affirm that the gland secretes some material which is necessary for the nourishment of the central

¹ Read at the Annual Meeting of the Caledonian Medical Society, held at Inverness on 23rd August, 1894.

nervous system. Gibson believes that this is the chief function of the gland, and says "it manufactures some substance specially necessary to the integrity and proper functional activity of the central nervous system." Horsley, on the other hand, regards it as being primarily a blood-forming gland, but he adds that "it secretes some substance useful to the general metabolism of the body." Freud points out that there is a distinct relation between the function of the thyroid and the functions of the sexual organs in women. Defaucamberge, working under Cornil, found that in phthisis the secreting activity of the gland is very notably decreased. If this occurs in phthisis, there is equal reason for believing that a similar condition is present in other diseases where the bodily metabolism is lowered, and in recent literature we find thyroid feeding suggested as a possible treatment for phthisis, cancer, and other cachectic diseases.

The noticeable changes in the skin of myxœdemic patients under the influence of thyroid led Byrom Bramwell to employ the drug in the treatment of psoriasis, with satisfactory results, although subsequent observers have not met with equal success. He has also extended his observations to the effect of thyroid feeding on eczema and lupus. But, next to myxœdema, perhaps the most striking results hitherto published have been obtained by Thomson and Telford Smith in the treatment of cretinism by thyroid extract. Recent research into the action of thyroid has undoubtedly emphasised the close relationship that exists between myxœdema, acromegaly, cretinism, and Graves' disease.

Having been impressed by the febrile condition of patients under the physiological action of the thyroid gland in the reported cases of myxœdema, we argued that in thyroid extract we had a medicine capable of producing a mild feverish condition which could be modified at will by the physician. Psychologists have noticed mental improvement and frequent recovery in patients with long standing insanity after attacks of erysipelas, the exanthemata, and inflammations generally. We thought that by artificial means it might be possible to simulate nature's method of cure in such cases. Clouston says—"I think we shall some day be able to inoculate a septic poison, and get a safe and manageable counter-irritant and fever, and so get the 'alterative' effect of such things, and the reaction and the stimulus to nutrition that follow febrile attacks."

In this paper we propose to give briefly the result of our

observations with the drug on thirty patients in this asylum. The observations extend over a period of eighteen months. The only reported case we have seen in which thyroid feeding was employed in the treatment of insanity is one of acute mania recorded by Dunlop.

Method of Observation.—First of all the patient was weighed, then put to bed, and for four days previous to the administration of the drug the pulse and temperature were observed morning and evening, and these observations were continued during treatment and convalescence.

The urine was collected for quantitative examination, and, when possible, a blood examination and pulse tracing were made. When the physiological effects of the drug were well marked, the observations on the urine and pulse were repeated.

The patients stayed in bed for several days after the treatment was discontinued. When they got up, usually at the end of a week, the weight was again ascertained, and a blood examination made.

The weights were repeatedly taken during the period of convalescence, and for several months afterwards.

Mental and physical changes were noted from day to day.

Method of Treatment.—After these preliminary observations we gave the patients thyroid tabloids thrice daily, in doses ranging from 20 to 60 gr., either with the ordinary meals or immediately afterwards. The drug in most cases was administered until a feverish condition was induced for several days. Failing this, we had to be satisfied with increased pulse-rate, flushing of the skin, and perspiration. To guard against dangerous results, frequent examinations of the pulse were made. When the pulse became rapid, soft, and compressible, the limit of safety of the physiological action of the drug was considered to be attained.

The earliest observations were made with glycerine extract of thyroid, but this was discarded as soon as thyroid tabloids came into the market, as a more accurate dosage could thus be given (each tabloid equals 5 grs. of fresh sheep's thyroid).

Individual constitutions differ so much in their power of resisting the action of the drug that the amount necessary to produce these results varied to a great extent. Though several of our patients took as large a dose as 150 grs. per day without apparent inconvenience, the best average dose to

produce the result aimed at is four tabloids thrice daily (60 grs). All the cases were treated by internal administration. During treatment the diet was not restricted in any way. After-treatment consisted in the administration of a tonic and extra diet.

Types of Insanity Under Observation.—The forms of mental disease comprised mania, melancholia, general paralysis syphilitic insanity, alcoholic amnesia, delusional insanity, puerperal and lactational insanity, and insanity at the climacteric. None of these patients were myxœdemic.

PHYSICAL EFFECTS.

These may be considered under the headings of the various systems.

Circulatory System.—In several cases there was a tendency to fainting when in the upright position—one patient actually fainted when walking from her bed to the bathroom. The changes which occurred in the pulse were the first indication that the drug was affecting the patients. These changes were—increased pulse-rate, sometimes as rapid as 150 per minute, increased volume, and diminished tension. In every case the pulse-rate became rapid, and in the majority the tension was lowered. The increased rate was usually combined with excitability or irritability of the pulse—*i.e.*, when the pulse was being counted, if the patient coughed, laughed, spoke, or moved, there was a perceptible quickening of the rate. Among the later pulse changes were irregularity, intermission, and compressibility. The sphygmographic tracing from the radial pulse corresponded with these observations.

Four of the cases suffered from organic heart disease. In all symptoms of cardiac distress were observed when the patient had taken the medicine for some days, and in one the treatment had to be discontinued before the physiological action was reached, on account of severe cardiac dyspnoea. Woodhead, in experiments on rabbits, found that heart disease was induced by the administration of thyroid extract.

Respiratory System.—On an average, the respirations were slightly accelerated as the pulse-rate increased. In one case the respirations became very rapid and almost dyspnoeic.

Five of the cases under observation had symptoms of phthisis pulmonalis, but the disease was not active. The immediate effect of administering thyroid tabloids to these

patients was the lighting up of activity in the phthisical areas. On discontinuing the drug the symptoms gradually disappeared. Four of the five gained weight, and are now in better health than when treatment commenced. The fifth is neither better nor worse.

Alimentary System.—Under the administration of the drug the tongue generally became furred, the appetite diminished, and when the fever was high thirst was increased. Nausea and actual vomiting occurred in several cases. The vomiting did not appear to be cerebral, for all the cases had foul breath and furred tongues, and the symptoms disappeared under stomachic treatment. In the majority the appetite became enormous after cessation of treatment.

Hæmopoietic System.—The thyroid gland did not appear to be affected in any way. *Blood examination:* These examinations were made with Gower's hæmocytemeter and hæmoglobinometer before and after treatment. The patients were divided into two classes—in the one, no other medicine except thyroid tabloids was used; in the other, an iron tonic was combined with thyroid treatment. The average loss of hæmoglobin in the first group was 5·9 per cent, and the diminution of the red blood corpuscles averaged 7·4 per hæmic unit. Those treated with iron and thyroid showed an average loss of 1·9 per cent of hæmoglobin, and an average gain of 1·9 in red blood corpuscles per hæmic unit.

Integumentary System.—The skin became moist, and at times the perspiration was profuse. Flushings, especially marked about the face and neck, were constant symptoms. Pigmentation of the skin, if present, disappeared under treatment, and the complexion became soft and delicate-looking. One case was suffering from acne of the face, and this condition greatly improved under treatment. Desquamation occurred to a greater or less degree in every case after the treatment was stopped.

Urinary System.—The average amount of urine passed in forty-eight hours before treatment was 87·2 oz.; the average amount passed when the patients were under the physiological action of the drug was 87·6 oz.

In none of the cases was there any evidence of albuminuria or other abnormality. No observations were made on the amount of urea or uric acid.

Nervous System.—The voluntary muscles presented symptoms of over-action—fine fibrillar twitchings were observed in the tongue, lips, facial muscles, and limbs.

Vaso-motor and Nutritive Functions.—Flushings of the skin, profuse perspirations, and rapid loss of body weight were very constant symptoms. During convalescence a rapid increase of body weight was the rule.

Headaches of more or less severity were frequently complained of. These headaches were relieved by the administration of a mild purgative.

Heat Changes.—A true febrile condition was produced in nearly every case. The temperature of patients under thyroid treatment appear to be readily affected by the temperature of the air. We found that in cold weather a larger dose was required to produce the feverish condition. On the other hand, a sudden rise in the atmospheric temperature induced a simultaneous rise in the body temperature of all patients under treatment at that time.

The general physical result was a period of malaise and fever during treatment, followed by a period of reaction associated with a feeling of well-being and great power of assimilating large quantities of food.

MENTAL EFFECTS.

The mental condition of patients under the physiological action of thyroid varied greatly. Some became depressed others emotional, laughing immoderately or weeping without cause. Some became irritable and had outbursts of impotent rage; while, on the other hand, irritable, morose, and bad tempered subjects showed marked amelioration of these tendencies. Mental improvement was noted, in several cases to occur suddenly while the patients were under the influence of thyroid; in others this improvement did not set in until the period of reaction was well advanced, and was frequently preceded by a period of irritability.

RESULTS OF TREATMENT.

Mania.—Four cases—two recovered, one was relieved, one temporarily improved, and then relapsed.

Melancholia.—Five cases—two recovered, two were relieved of whom one relapsed, and one was not improved.

Syphilitic Insanity.—One case—no improvement, mental or physical.

Alcoholic Amnesia.—One case—no improvement.

Chronic Insanity.—Seven cases, ranging from one to ten

years' duration—two recovered, one was relieved, four were not improved. The two recovered cases were females. The one was of four years' duration. A few days after treatment commenced she improved, and after a period of irritability during convalescence, was discharged. Since her return home she has made further improvement, and is now quite well. The other case was of over two years' duration, and was regarded as hopeless. After treatment she gradually improved, and was discharged recovered at the end of four months.

Puerperal Insanity.—Four cases—all made good recoveries.

Lactational Insanity.—Two cases—one recovered, one was not improved. The recovered case had been five months under treatment without any benefit. After a course of thyroid feeding she made a satisfactory recovery. The other case improved physically after the reaction, but there was no corresponding mental change. She had been insane for more than a year.

Climacteric Insanity.—Three cases—all recovered. One of these cases had been insane for over a year, and was making no progress prior to thyroid treatment.

General Paralysis.—Three cases—one was relieved, one temporarily improved, the third was in no way altered.

None of these cases were subjected to thyroid feeding until other means of treatment had failed. Great physical improvement occurred in the cases that recovered or were relieved, the average gain in body weight, from the commencement of treatment until the patient was discharged, being 13·9 lb.

Of these 30 cases 10 were males and 20 females. Of the 10 males 1 recovered, 5 were relieved, and 4 were not improved. Of the 20 females 13 recovered, 2 were relieved, and 5 were not improved.

Dividing the patients into two groups—recent cases and cases where the insanity had lasted over one year—the recovery rate in both classes was more satisfactory among women than men.

CONTRA-INDICATIONS TO THE USE OF THYROID FEEDING.

Thyroid feeding, in our opinion, is dangerous in cases of acute mania and melancholia where there are rapid loss of body weight and mal-assimilation of food; also, in cases where there is active phthisis or valvular disease of the heart. The profound effects of the drug on the circulatory system render

it imperative that during treatment, and for at least a week afterwards, the patient should be rigorously kept in bed, and from the unpleasant, and at times dangerous effects we have noticed, we should not consider ourselves justified in administering thyroid without this precaution.

In conclusion, we are strongly of opinion that the administration of thyroid under proper precautions is a valuable addition to our armamentarium in the treatment of certain cases of insanity. The observations we made fully justified our anticipations that the production of a true febrile condition and the resulting reaction would prove of benefit in some cases.

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